EXHIBITIONS AND NOTICES.

October 24th, 1916.

Dr. A. Smith Woodward, F.R.S., Vice-President, in the Chair.

The Secretary read the following report on the Additions made to the Society's Menagerie during the months of May, June, July, August, and September, 1916 :—

May.

The registered additions to the Society's Menagerie during the month of May were 129 in number. Of these 81 were acquired by presentation, 8 were received on deposit, 24 by purchase, 6 in exchange, and 10 were born in the Gardens.

The number of departures during the same period, by death or removals, was 117.

Amongst the additions special attention may be directed to :—

A Kashmir Deer (*Cervus hanglu*) ♀, from Kashmir, presented by H.G. The Duke of Bedford, K.G., Pres.Z.S., on May 17th.

A Reindeer (*Rangifer tarandus*) ♀, born in the Menagerie on May 22nd.

1 Galapagan Dove (*Nesopelia galapagoensis*), new to the Collection, from Hood Island, Galapagos, presented by Fleet-Surgeon E. B. Pickthorn, F.Z.S., on May 31st.

4 Grey-necked Crowned Cranes (*Balearica regulorum*), from Northern Rhodesia, presented by H.G. The Duke of Abercorn, F.Z.S., on May 8th.

3 Great Bustards (*Otis tarda*), from Spain. presented by E. J. H. Eldred on May 29th.

1 Holbrook's Terrapin (*Chrysemys mobiliensis*) and 1 Horned Lizard (*Phrynosoma brevicornis*), from N. America, both new to the Collection, presented by Dr. H. G. F. Spurrell, F.Z.S., on May 3rd.

June.

The registered additions to the Society's Menagerie during the month of June were 87 in number. Of these 34 were acquired by presentation, 8 were received on deposit, 1 by purchase, 1 in exchange, and 43 were born in the Gardens.

The number of departures during the same period, by death or removals, was 102.

Amongst the additions special attention may be directed to :—

1 Red-eared Cercopitheque (*Cercopithecus erythrotis*), from the Cameroons, presented by Mrs. Philip Bayer on June 28th.

1 Black Mangabey (*Cercocebus aterrimus*), from the Belgian Congo, purchased on June 29th.

1 Lion Cub (*Felis leo*), from Western India, presented by Lieut. W. Pole Carew on June 12th.

2 Andean Geese (*Chloephaga melanoptera*), bred in the Menagerie on June 30th.

2 Colombian Crested Colins (*Eupsychortyx leucopogon*), from Colombia, presented by Master Anthony Chaplin on June 22nd.

July.

The registered additions to the Society's Menagerie during the month of July were 99 in number. Of these 46 were acquired by presentation, 11 were received on deposit, 9 by purchase, 5 in exchange, and 28 were born in the Gardens.

The number of departures during the same period, by death or removals, was 94.

Amongst the additions special attention may be directed to :—

2 Fennec Foxes (*Vulpes zerda*), from North Africa, received in exchange on July 24th.

1 Grizzly Bear (*Ursus horribilis*), from Wyoming, presented by Ellis Ashmead-Bartlett on July 1st.

1 Kiang (*Equus kiang*) ♂, born in the Menagerie on July 9th.

1 White-bearded Gnu (*Connochætes albojubatus*), born in the Menagerie on July 24th.

2 Common Trumpeters (*Psophia crepitans*), from Guiana, and 1 Green-winged Trumpeter (*P. viridis*), from the Amazons, purchased on July 13th.

5 Common Rheas (*Rhea americana*), bred in the Menagerie on July 20th.

August.

The registered additions to the Society's Menagerie during the month of August were 75 in number. Of these 52 were acquired by presentation, 18 were received on deposit, and 5 in exchange.

The number of departures during the same period, by death or removals, was 93.

Amongst the additions special attention may be directed to :—

1 Fishing Cat (*Felis viverrina*), from India, received in exchange on August 18th.

1 Siberian Wild Dog (*Cyon alpinus*), from Central Asia, received in exchange on August 30th.

2 Arctic Foxes (*Vulpes lagopus*, blue variety), from Iceland, presented by Commander V. L. Bowring, R.N., on August 5th.

2 South American Mudfish (*Lepidosiren paradoxa*), from Para, presented by G. Brocklehurst on August 8th.

September.

The registered additions to the Society's Menagerie during the month of September were 56 in number. Of these 46 were acquired by presentation, 8 were received on deposit, 1 in exchange, and 1 was born in the Gardens.

The number of departures during the same period, by death or removals, was 146.

Amongst the additions special attention may be directed to :—

1 Bornean Gibbon (*Hylobates muelleri*), from British North Borneo, deposited on Sept. 21st.

1 Southern River-Hog (*Potamochœrus chœropotamus*) ♀, from Mozambique, presented by Capt. William Dyer on Sept. 19th.

1 Pink-winged Rose-Finch (*Rhodospiza obsoleta*), from Central Asia, new to the Collection, presented by Alfred Ezra, F.Z.S., on Sept. 8th.

Yellow Varieties of Green Parrakeets.

Mr. Alfred Ezra, F.Z.S., exhibited living examples of three rare lutino Parrakeets, and made the following remarks :—

"The three lutino Indian Parrakeets I am exhibiting were sent to me by my brother from India a few weeks ago. They represent three species—the Alexandrine (*Palæornis nepalensis*), the Ring-neck (*P. torquatus*), and the Plum-head (*P. cyanocephalus*). In all three birds the yellow is pure and perfect, being of a delicate sulphur shade common in these lutinos. The Alexandrine has the usual red patch on the wing, and the wing-coverts adjacent to it are also edged slightly with red, making the bird very beautiful. Neither the Alexandrine nor the Ring-neck has a ring, but the Plum-head has a pink head. As they all have the full long tail they must be more than a year old. The Ring-neck and the Plum-head both have red eyes and flesh-coloured feet, but the Alexandrine's eyes are normal in colour and the feet are light: however, some races of the Alexandrine have pale-coloured feet naturally. All these birds are rare, but the Alexandrine, which is the finest-looking bird, is also the rarest of the lot, and is the first lutino of the species I have ever seen."

Eggs from the Society's Gardens.

Mr. D. Seth-Smith, F.Z.S., Curator of Birds, gave an exhibition of Birds' eggs which had been laid in the Society's Gardens during the last few years. He explained that every endeavour was made to induce the birds under his charge to reproduce their kind in captivity, and fertile eggs were incubated where possible; but, nevertheless, in any large collection of birds there was always a number of eggs laid that did not hatch, and very often unpaired female birds laid eggs as freely as paired birds, these being of course infertile.

During recent years eggs that were not likely to hatch had been kept, with the result that a fair series was now in the possession of the Society.

Amongst the eggs of special interest shown were those of four species of Tinamous, two species of Cassowary, three species of Crane, three species of *Turnix*, the remarkable eggs of *Apteryx*, and such rarities as those of *Rhinochetus jubatus*, *Manucodia keraudreni*, and *Sarcorhamphus gryphus*, as well as a number of species of Pheasants, Waterfowl, and Passerine birds.

November 7th, 1916.

Dr. S. F. Harmer, M.A., F.R.S., Vice-President, in the Chair.

Nestling Birds from the Society's Gardens.

Mr. D. Seth-Smith, F.Z.S., Curator of Birds, exhibited a series of skins of nestling birds of over seventy species. He called attention to the striped colour-pattern which was found in such very distinct species as Rheas, Sheldrakes, and Pheasants, and remarked that this pattern was evidently of very great antiquity, and inherited from some common ancestor. Where it had proved effective for the preservation of the species by its protective resemblance to surroundings it had been retained, but in other cases it had been modified or had even disappeared altogether. In the case of most of the ducks, the stripes had been broken up into spots, but showing more or less the same pattern as in the striped type of markings. In the Gulls, Waders, and others the stripes had been further broken up into spots, and in the Swans, Geese, and Rails all markings had disappeared.

Mr. Seth-Smith called attention to the young of the Coscoroba Swan (*Coscoroba coscoroba*), and remarked that this was the only swan, if, indeed, it was a swan, which showed a distinct colour-pattern in the nestling down.

Scent-Glands in Mammals.

(Text-figures 1–12.)

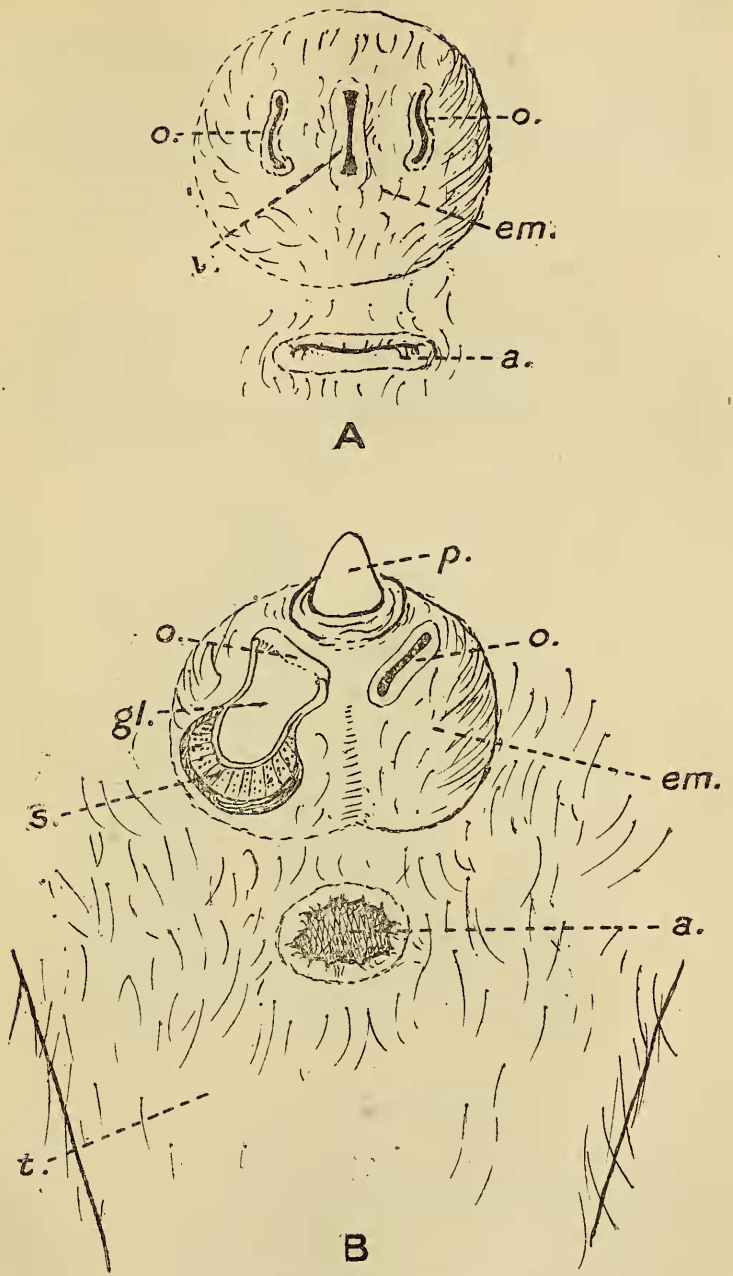
Mr. R. I. Pocock, F.R.S., F.L.S., F.Z.S., Curator of Mammals, exhibited a series of lantern-slides to illustrate the position and structure of some new and little-known cutaneous scent-glands in various mammals, and made the following remarks :—

The Inguinal Glands of Orycteropus.

My search for special scent-glands in *Orycteropus* was instigated by the strong smell given off by the living animal, and was rewarded by the discovery, first in a female and then in a male, of a pair of large glands upon the genital eminence. In the female they lie one on each side of the vulva, and in the male just behind the prepuce and the short conical glans penis.

The orifice of each gland is an elongated slit, which, when constricted and closed, may easily be overlooked. It leads into a short wide sac filled with yellow secretion, smelling like that of the anal glands of a Polecat (*M. putorius*). The layer of glandular cells is thick and envelops the lower portion of the wall of the sac, which is provided with a strong constrictor muscle. In the male these two glands, imbedded in the integument just behind the penis and with their orifices tolerably close together, cause a swelling which superficially resembles a scrotum. In the female there is a somewhat similar swelling with the vulva in the centre and the glands, which are widely separated, on each side of it.

Since these glands, so far as can be judged from the material examined, are equally well developed in the two sexes, they



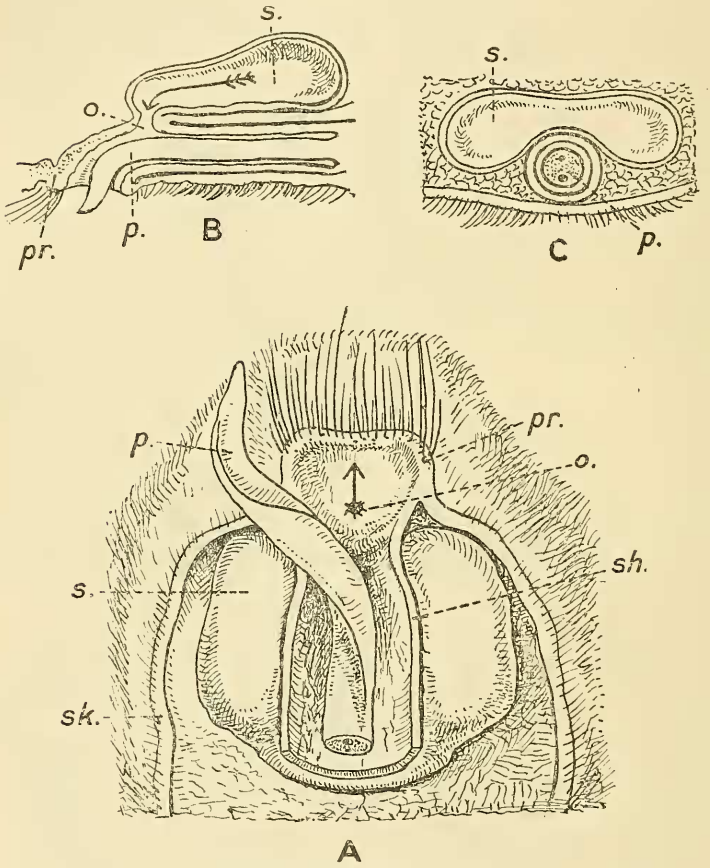
Inguinal glands of *Orycteropus capensis*.

A. Glands of the female. *a.*, anus; *em.*, genital eminence; *v.*, vulva; *o.*, orifices of the glands.

B. The same of the male with the gland of the right side (left of figure) laid open to show the reservoir or sac (*gl.*) and the secreting layer of cells (*s.*); *p.*, penis; *t.*, base of tail; *a.*, *em.*, *o.*, as in fig. A.

cannot be included in the category of secondary sexual characters, although their scent may enable individuals of *Orycteropus* to find one another; and since these animals are otherwise unprovided with means of self-defence, I suspect that the secretion of the glands is protective like those of the anal glands of *Mephitis* and *Mustela*, which it resembles in odour.

Text-figure 2.



The preputial gland of *Sus scrofa*.

A. The gland dissected from the ventral side, the flaps of abdominal integument and of the sheath of the penis turned aside. The glans penis also turned aside to show the orifice of the gland in the prepuce.

B. Lateral view of the same, partly diagrammatic.

C. Transverse section through the sac of the gland showing its extension above the penis.

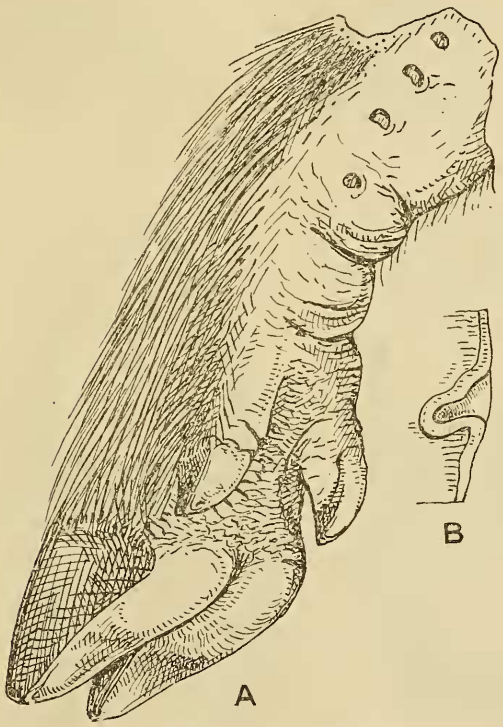
p., penis; *pr.*, prepuce; *o.*, orifice of gland; *s.*, sac of gland; *sh.*, cut edge of sheath of penis; *sk.*, cut edge of skin of abdomen.

The Digital Glands of Potamochœrus *and other glands in the Suidæ.*

Several genera of Suidæ are provided with special cutaneous glands, all of which, with the exception of the digital glands of *Potamochœrus*, were described long ago.

In the Peccaries (*Tayassu* or *Dicotyles*) there is on the fore-part of the lumbar region a median *dorsal gland*, normally

Text-figure 3.



Carpal gland of *Sus scrofa*, ♂.

A. Inner side of right fore foot, showing the series of apertures of the gland.

B. Section through one of the pockets.

concealed beneath the bristles, which discharges secretion resembling concentrated human perspiration in scent. It was known to Cuvier, and was described and figured by Owen*. Both male and female possess it.

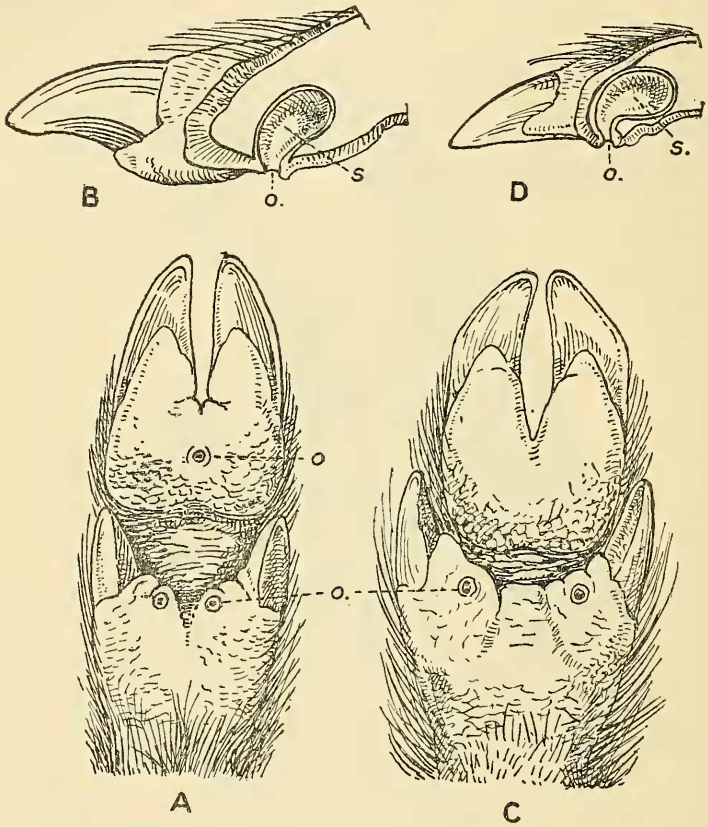
Owen also described a *facial gland* between the eye and the

* Anat. Vert. iii. Mammals, p. 636, 1868.

snout in the Wart-hog (*Phacochœrus*). This gland, which I have not seen, resembles, apparently, the analogous gland of many Ruminant Artiodactyles.

In males of the genus *Sus* there is a voluminous *preputial gland*, the sac of which lies above the distal end of the penis and

Text-figure 4.



The digital glands of *Potamochœrus chœropotamus*, ♂.

A. Lower view of hind foot, showing the apertures of the glands in the lateral digits and between the third and fourth digits of the foot.

B. Vertical longitudinal section between the third and fourth digits of the same foot, showing the gland.

C. Lower side of the fore foot of the same animal, showing the presence of the lateral and the absence of the median gland.

D. Vertical longitudinal section of one of the lateral glands of the same foot.

o., orifice; *s.*, sac of gland.

the median aperture opens in the dorsal wall of the prepuce. I have examined this gland in *Sus scrofa*; but its presence or absence in other genera and species of Suidæ has yet to be established.

In *Sus scrofa* also there is a subvertical series of small glands on the postero-inner side of the carpus and known as the *carpal glands*. The carpal and preputial glands have long been known in domestic swine, the carpal glands being present both in boars and sows.

Digital Glands of Potamochœrus.—These glands, which do not appear to have been previously recorded, I discovered on the fore and hind feet of a male example of the South African River-hog or Bush-pig (*Potamochœrus chœropotamus*), which died in the Gardens, Oct. 30th, 1911.

On the fore foot there is a pair of these glands, one of them opening upon the skin of the lower side of the second digit, a little above the base of the hoof, and the other in a corresponding position on the fifth digit. Each is marked externally by a small pore with a thickened circular rim. The sac of the gland, filled with white, waxy secretion, is tolerably capacious and flask-shaped, the neck of the flask being represented by a short, narrow duct leading to the pore and bent nearly at right angles to the long axis of the gland, which projects upwards within the digit. By pressure the secretion can be squeezed from the orifice of the gland.

The hind foot has two precisely similar glands on the second and fifth digits and, in addition, a third unpaired gland nearly resembling them and opening in the centre of the sole of the foot, a short distance behind the cleft between the second and third digits. The flask-shaped sac of the gland, filled like the others with waxy secretion, lies in the foot between the bones of these digits.

I do not know whether these glands are confined to the male or not; but no trace of them was to be discovered in a young female of the West African species (*P. porcus*). Seeing that two distinct species are here concerned, it is clearly impossible to draw any sure conclusion as to the absence of these glands in the female of *P. chœropotamus* and to their presence in the male of *P. porcus*. Nevertheless, the constancy in the occurrence of similar glands in nearly related species of ruminant Artiodactyles justifies, by analogy, the expectation that these digital glands will be found to be a secondary sexual character confined to the male in the genus *Potamochœrus*.

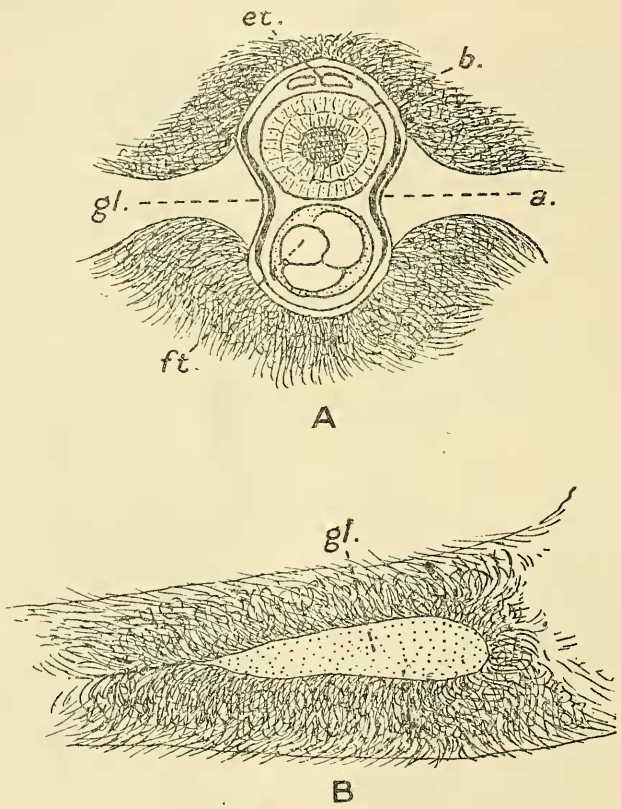
The Metatarsal Glands of Lama vicuna.

On each side of the metatarsus Llamas have an elongated naked patch of skin with which everyone who has kept these animals is probably acquainted.

In a female example of *Lama vicuna* this area, pink in colour

and situated in the upper part of this portion of the leg, was broadest in its upper half, pointed below and bluntly rounded above. It was almost concealed by the thick coating of woolly hair surrounding it. Its surface was depressed into the hollow

Text-figure 5.



Metatarsal gland of *Lama vicuna*.

A. Vertical transverse section through right metatarsus passing through the glandular area. *a.*, space on left side for holding the secretion between the partly separated upper and lower fringes of hair; *gl.*, naked skin with its layer of secreting cells; *b.*, metatarsal bone; *et.*, extensor, and *ft.*, flexor tendons of the foot.

B. Upper part of same portion of limb, before being cut, seen from the inner side, with the hairs clipped short to expose the glandular area (*gl.*).

marking the point of contact between the metatarsal bone and the strong flexor tendons of the foot. A secreting layer of

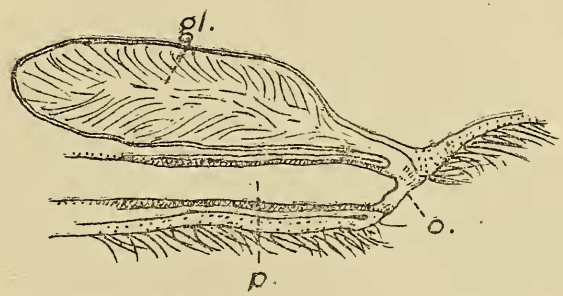
dermal cells everywhere underlies the naked area, which was covered with waxy secretion.

The Preputial Gland of Nototragus.

Up to the present time *Moschus* is the only Ruminant Artiodactyle in which a preputial gland has been discovered. I found a gland similarly situated in the Grysbok (*Nototragus melanotis*), a small African Antelope.

The sac of the gland was $1\frac{1}{2}$ inches long and 1 inch wide and narrowed anteriorly towards the orifice, which was situated in the prepuce just above the tip of the glans penis. The sac, extending backwards parallel with the penis, had its lining integument ridged and wrinkled and covered with long hairs, the tips of which were directed towards the orifice. The strong-smelling secretion, filling the sac, was dark green in colour and waxy in consistency.

Text-figure 6.



Preputial gland of *Nototragus melanotis*.

gl., sac of gland filled with hairs; *p.*, penis retracted; *o.*, preputial orifice common to gland and penis.

Since discovering the gland I have had no opportunity of examining male examples of *Ourebia*, *Rhaphiceros*, and other antelopes related to *Nototragus*.

The Dorsal Gland of Dendrohyrax.

In the Hyracoidea the presence of a dorsal gland, marked externally by a patch of white, yellowish, or black hairs, has long been known to systematic zoologists.

In *Dendrohyrax dorsalis* the glandular area is an elongated strip of naked skin, rather more than twice as long as broad, widest across the middle, gradually narrowed and pointed in front, more abruptly narrowed and blunter behind. The hairs surrounding it are long, black at the base and white distally. The lateral portions of the naked strip are bluish grey, minutely

and sparsely speckled with hair follicles, and show a pair of larger follicles in the anterior half, one set on each side close to the median portion of the area, which is marked off from the rest by its pinkish-yellow tint. Beneath this pink portion the dermal layer is thickened by the enlargement of its secretory cells.

When stimulated by fear or anger *Dendrohyrax* raises the hairs over the glandular area, displaying their whiteness as a conspicuous patch. The action irresistibly recalls the expansion of the rump patches by some deer and antelopes when put to flight.

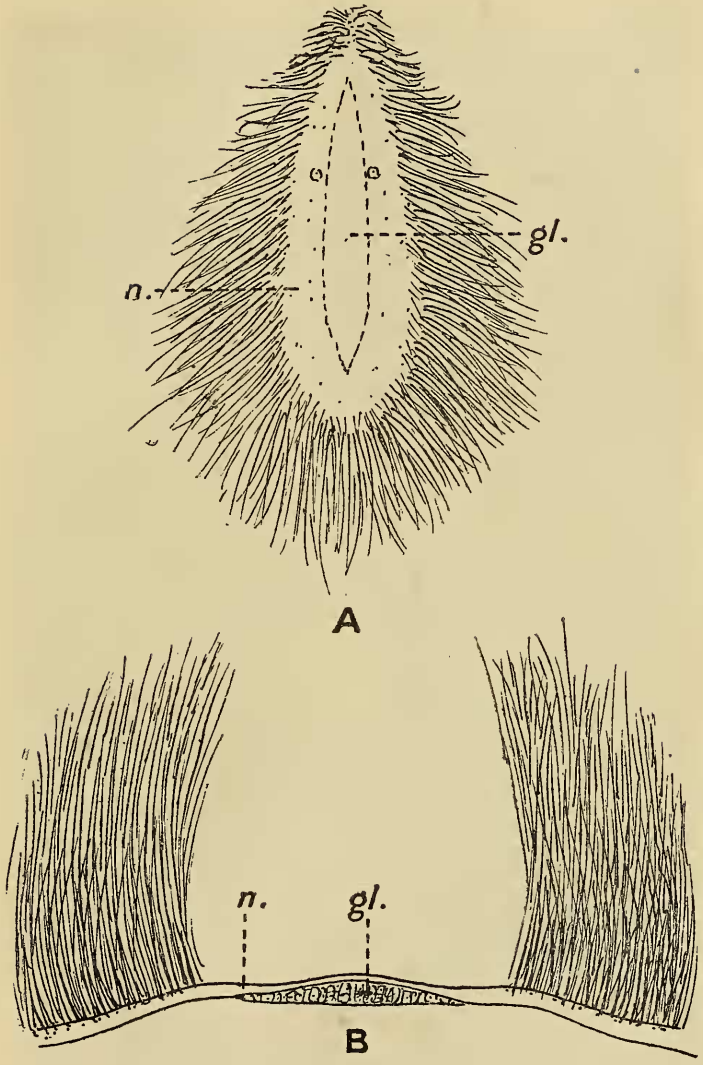
Text-figure 7.

Photograph of *Dendrohyrax dorsalis* showing the white patch of hairs overlying the dorsal gland.

The Temporal Gland of Elephas *and* Loxodonta.

The presence of a gland on each side of the face in Elephants has long been known. Owen succinctly described it as follows:— "In the Elephant a large gland of a flattened form and multilobate structure lies beneath the skin of the face, in the temporal region: the secretion exudes from a small orifice situated about half-way between the eye and the ear. The gland enlarges in

Text-figure 8.

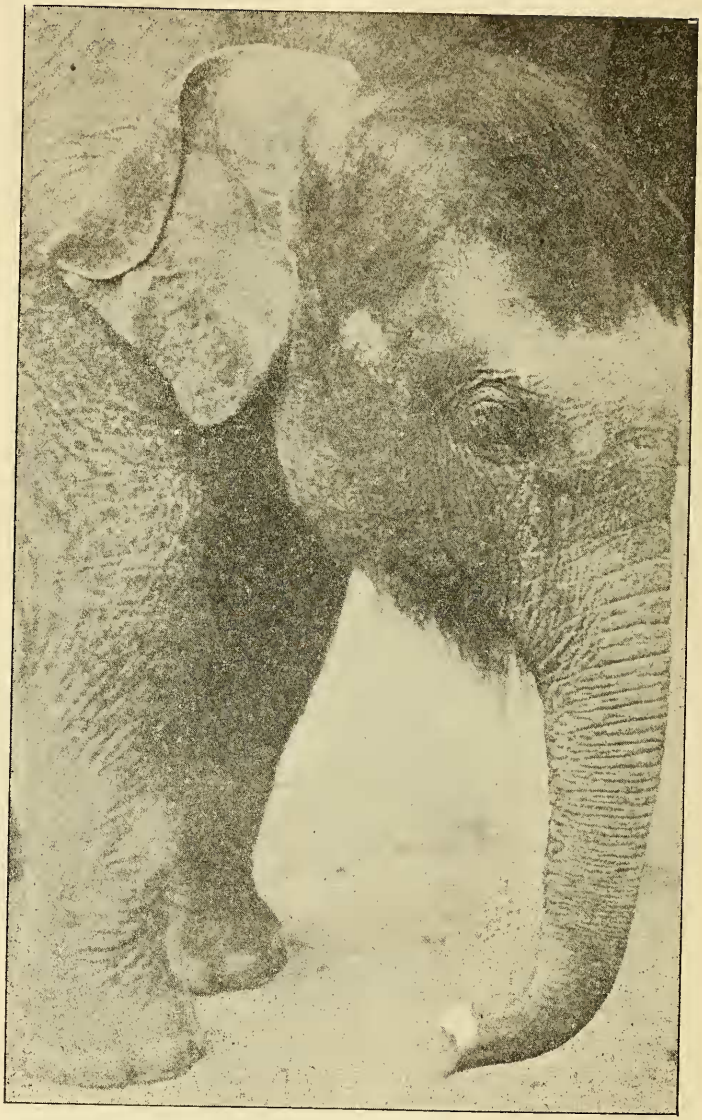


The dorsal gland of *Dendrohyrax dorsalis*.

A. Glandular area seen from above when the hairs are parted. *n.*, naked skin; *gl.*, central yellowish-pink tract overlying secreting cells.

B. Transverse section of the above. *n.*, naked skin; *gl.*, secreting layer of cells.

Text-figure 9.

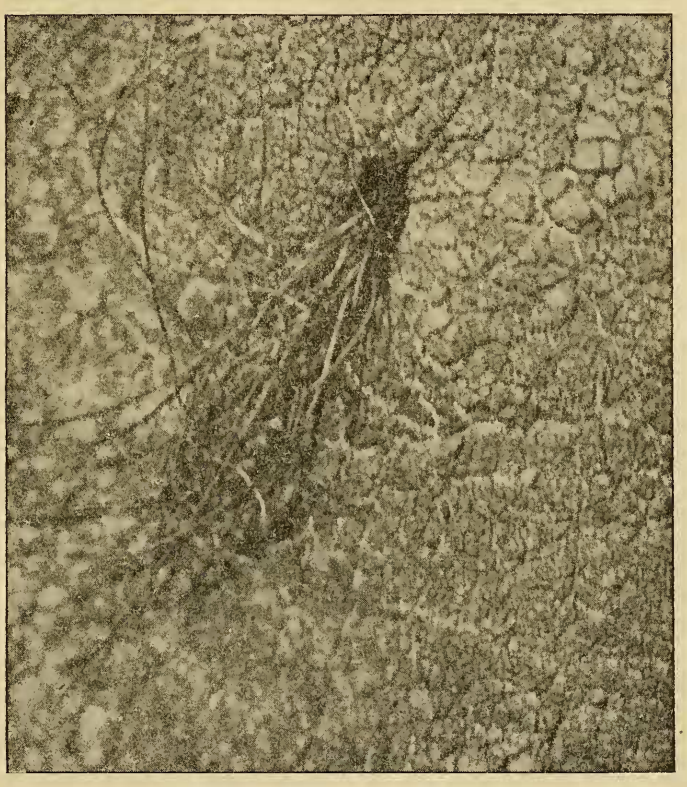


Photog raph of young Malayan Elephant showing position of temporal gland between the eye and ear.

the male at the rutting season, and the secretion then has a strong musky odour" (Anat. Vert. iii. p. 634, 1868).

In an African Elephant, about twenty years old, the orifice of the gland was a vertical slit, about $\frac{1}{4}$ inch long, opening six inches behind, and a little higher than, the eye. The main sac of the gland, into which a few subsidiary sacs opened, was about two inches deep and filled with strong smelling secretion. The wall

Text-figure 10.



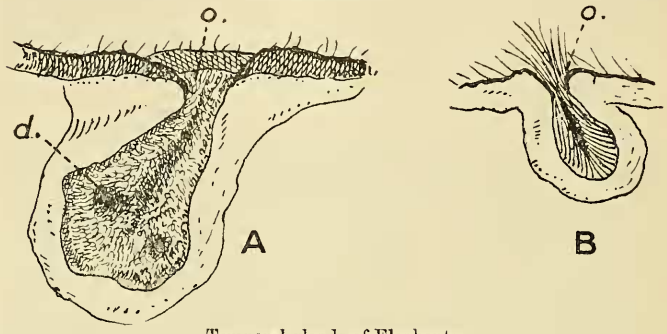
Enlarged view of the gland of young Malayan Elephant, showing tuft of hairs projecting from the orifice.

of the sac was composed of thick white skin, and its lining was hairless but covered with coarse papillæ.

In a young Malayan Elephant, about three years old, on the other hand, the sac of the gland, about $\frac{1}{2}$ an inch deep, was covered with hairs packed together with sour smelling secretion and long enough to project beyond the orifice of the gland as a

distinct black tuft very noticeable in the living animal. In two young Indian Elephants of approximately the same age, the gland was marked by no such tuft, and was invisible in the

Text-figure 11.



Temporal glands of Elephants.

A. Vertical section of sac of gland of the African Elephant (*Loxodonta*). *o.*, orifice of gland; *d.*, orifice of a diverticulum opening into the main sac.

B. The same of young Malayan Elephant (*Elephas*), showing the sac of the gland filled with hairs protruding from the orifice (*o.*) as a facial tuft.

Text-figure 12.

Sketch of the head and fore-quarters of the La Madelaine Mammoth, showing the supposed gland between the eye and the ear. (Copied from 'Cave Hunting,' by W. Boyd Dawkins, p. 346, fig. 120.)

wrinkled chin unless carefully looked for. It is also normally invisible in adult and immature cow elephants of the Indian

species except at times when the secretion overflows and forms a dark streak down the side of the face. I have never seen a full-grown bull in rut, and am unable to speak as to the quantity of secretion discharged at that period.

In the palæolithic engraving of a Mammoth on a fragment of tusk found in the cavern of La Madelaine, by Lartet & Christy, there are between the eye and ear distinct scars, with streaks passing downwards from them over the jaws. These scars and streaks represent, I believe, the gland and the hairs on the face beneath stuck together with secretion. It will be noticed that the streaks are thicker than those shown elsewhere on the body and head, which are always interpreted as hairs; and it may be supposed that they were engraved in this way to depict hairs adherent with the sticky substance. If this interpretation be correct, the conclusion suggests itself that in the mammoth the gland may have been larger than in modern elephants, and possibly provided during life with hairs protruding through the orifice.

November 21st, 1916.

Dr. S. F. Harmer, M.A., F.R.S., Vice-President, in the Chair.

The Secretary read the following Report on the Additions made to the Society's Menagerie during the month of October, 1916:—

The registered additions to the Society's Menagerie during the month of October were 77 in number. Of these 51 were acquired by presentation, 11 were received on deposit, 12 by purchase, and 3 were born in the Gardens.

The number of departures during the same period, by death or removals, was 139.

Amongst the additions special attention may be directed to:—

A pair of Wild Boars (*Sus scrofa*), from the forest of Lhuyère-Sévigny, Oise, France, presented by Capt. Maurice Portal, F.Z.S., on Oct. 23rd.

1 Sclater's Orange-headed Tanager (*Calospiza lunigera*) and 1 Golden Tanager (*Calospiza aurulenta*), both from Ecuador, presented by Alfred Ezra, F.Z.S., on Oct. 12th.

A Shooting Expedition in Central Asia.

Mr. Alfred Ezra, F.Z.S., exhibited a large series of lantern-slides illustrating a shooting expedition in Central Asia, and made the following remarks:—

The pictures I am showing were taken by me on a shooting expedition in Central Asia in 1902. Starting from Calcutta, I travelled by train to Rawalpindi, and from there a drive of

200 miles brought me to Srinagar, the capital of Kashmir. Here I made all arrangements for food, followers, and transport. Soon after leaving Srinagar we successfully tackled two mountain passes. These were the Tragbal Pass, 11,700 ft., and the Burzil Pass, 13,500 ft. On the way to Gilgit I spent a few days after markhor, ibex, and bears. We did the journey of 150 miles, from Gilgit to the Pamirs, in 15 days, the progress being so slow on account of the difficult nature of the country. The mountain-tracks in places were most precipitous and dangerous. These tracks were often conducted round the edge of precipices overhanging the river by artificial ladders and ledges built out from the cliff, with stones laid upon supports of branches fitting into holes in the rocks. The most unsafe looking bit was where a log not more than 6 inches wide was thrown across, with one end of it resting on a rock jutting out 20 feet above, and the lower end on some stones. Under this there was a sheer drop of about 2000 feet into an angry river. Without the help of the fine Hunza men who were sent with us, we should have had the greatest difficulty in getting over this terrible country safely. We had our first view of the Pamir region from the top of the Killik Pass (16,700 ft.). Here we stood at the point where three great Empires meet—Russia to the north, to the east the boundaries of the Chinese Empire, and British India to the south. After shooting a few *Ovis poli* in some of the valleys in the Chinese Pamirs, I went on to the Russian Pamirs, where I shot some more. As no one ever shoots in the latter place, game was most plentiful, and one day I saw as many as 200 *Ovis poli* rams in a small valley. From here I worked my way down to the plains of Kashgaria, and it was a treat to come down from those awful altitudes and to see trees and flowers again. For over six weeks I had not been lower than 12,000 ft., and most of the time well over 14,000 ft. Leaving Kashgar at the beginning of August, I went to the Thian Shan Mountains in search of Wapiti—travelling through Maralbashi, Aksu, and Koksu—a distance of 576 miles. After shooting the Asiatic Wapiti in the Koksu Valley I went on to Kuldja, from where a drive of 850 miles in a tarantass (a four-wheeled carriage without springs) brought me to Tashkent in Russian Turkestan in 15 days. Since leaving the railway at Rawalpindi and reaching the railway at Tashkent I travelled 2583 miles in seven months, having walked and ridden 1533 miles and driven 1050 miles. Of course this does not include the enormous distances covered in search of game. From Tashkent I took the train to Samarcand and Bokhara, spending a couple of days at each of these interesting old places. A journey of 40 hours from Bokhara by train brought me to Krasnovodsk. Here I crossed the Caspian Sea to Baku in about 16 hours, and there I visited some interesting naphtha wells. From Baku I took the express to Moscow and Petrograd, making a stay of a few days at each place. Thence to Paris and home, bringing to an end a most interesting and enjoyable expedition."